haacon

Betriebsanleitung
(Original) **DE**

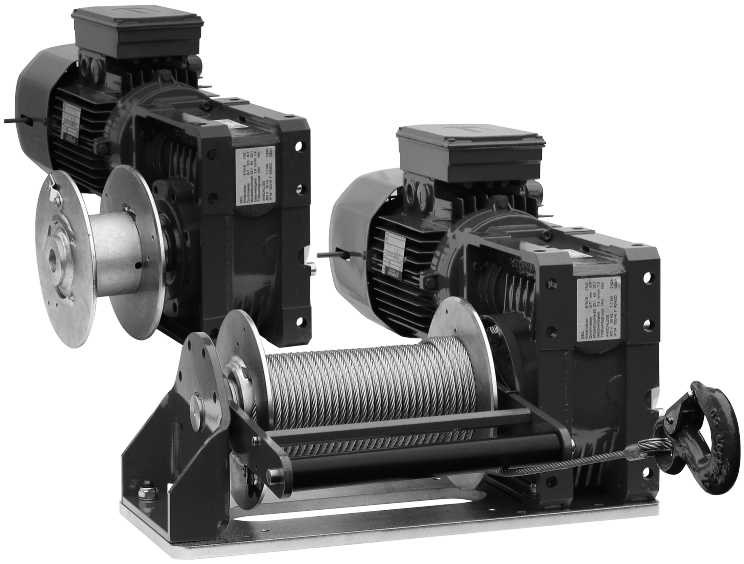
Operating Manual
(Translation) **GB**

Manuel d‘utilisation
(Traduction) **FR**

Manual de instrucciones
(Traducción) **ES**

Istruzioni per l‘uso
(Traduzione) **IT**

Manual de instruções de funcionamento
(Tradução) **PT**



Elektrische Seilwinde Typ **ESF** / **ESG**
Electrical rope winch type
Treuil à câble électrique type
Torno de cable eléctrico tipo
Argano a fune elettrico tipo
Guincho de cabo eléctrico tipo

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1. GENERAL INFORMATION

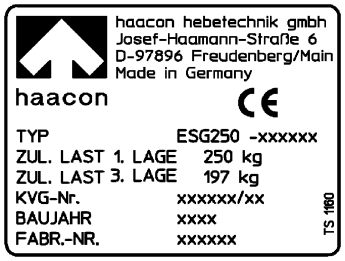
1.1 Operating Instruction Specifications

The contents are the basis for safe, appropriate, and economical operation. The operating instructions contain important notes on design, commissioning, handling, operation, and maintenance.
The operating instructions must be available at the device. Persons, who are assigned to work with/at the device device, e.g.:
– Operation, care
– Troubleshooting
– Maintenance and servicing
– Transport
must be familiar with the contents and act accordingly.
Symbols used in the operating instructions:

	Danger for life and health of persons, device, and material
	Danger by suspended loads for life and health of persons
	Danger by electric current for life and health of persons
	Danger by drawing in of extremities
	Passenger transport prohibited
	Notes and tips on use

1.2 Machine Type, Series, Year of Construction

The type plate for identification of the rope winch:



Type designation - Article number

Customer number (KVG)/Position Series Number

1.3 Manufacturer, Service Address

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1.4 Intended Use

Only used as intended for safe operation.
The operator is responsible for damage to persons and property, which result from non-intended use. **The manufacturer's liability and warranty becomes void in the case of arbitrary changes.**

– Only suitable for raising, lowering, and pulling freely movable loads.
– Only use **lifting winches** for raising and lowering loads vertically or on inclined surfaces.
– Only use**pulling winches** for moving loads on horizontal surfaces.
– Only use in a sound technical condition.
– Only instructed personnel may install, operates, and maintenance and the device.
– Dimension the connection construction sufficiently.
– Attach the winch distortion-free.
– Detachable drums are only permissible for vehicle salvage winches, winches for boat trailers and pulling winches.

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– *The following is not permitted:*
– Exceeding the permissible load (see type, load plate and technical data).
– Conveyance of passengers
– Persons standing under suspended loads.
– Pulling away jammed or blocked loads, dragging of loads and pulling diagonally.
– Transporting burning liquid material.
– Working with defective winches, rope or load carrying equipment.
– Working outside of the permissible temperature range.
– Operation in tropical environment.

Operating range:

– The winch corresponds to the EN 14492-1 "Power driven winches" as well as the Accident Prevention Regulations BGV D8 "Winches, hoists, and pulling equipment".

The equipment is not certified for

– Building elevators (BGV D7).
– Stages and studios (BGV C1).
– Conveying loads above lines and pipes, through which combustible gases or liquids which could also be harmful to health only with control units according to safety category 2.
– Lifting equipment for persons (ZH 1/461).
– Use in explosive environment (ATEX).

The device is unsuitable for

– Continuous operation (see technical data, motor group).
– Excessive inching operation.
– Use during constant vibration.
– Use on seagoing vessels and mobile offshore equipment.
– Aggressive environment.
– Forestry.

Limited suitability for (specific design):

– Stationary offshore equipment

2. SAFETY INSTRUCTIONS

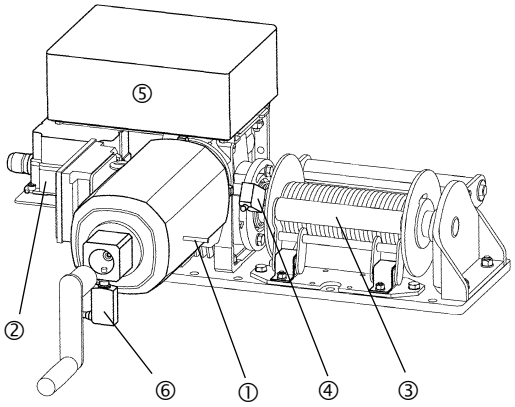
2.1 General Safety Instructions

The device corresponds to all relevant regulations. Nevertheless its use can endanger the user or third parties and/or damage the device and other material assets in the case of:
– Not instructed (trained) personnel.
– Non-intended use.
– Inappropriate service/maintenance.

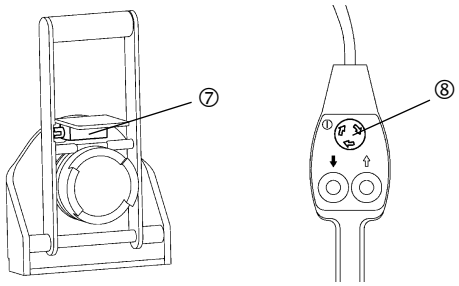
Certain residual risks are given even if all safety instructions have been observed. Whoever works with or in the vicinity of the device, must be familiar with these dangers and obey instructions, which prevent that residual risks result in accidents or damages.
The residual risks are marked by symbols (explanation in Chapter 1.1).

Safety devices

Check the safety devices regularly for perfect function (--> also Chapter 7 and 8):



1	Holding brake	Always check before beginning work
2	Limit switch	Required according to EN 14492-1; Adjust before commissioning; Regular examination
3	Pressure roll	Regular examination
4	Slack rope switch	Adjust before commissioning; Regular examination
5	Load limiting device, overload protection	Required according to EN 14492-1 for loads ⩾ 1000 kg; Adjust before commissioning; Regular examination
6	Motor shut-down during Emergency Hand Operation	Adjust before commissioning; Examination before use and according to inspection plan



7	Motor shut-down with detached drum	Adjust before commissioning; Regular examination
8	„Emergency stop“ switch	Regular examination
No. 2, 3, 4, 5 ,6 ,7 ,8 optional		

2.2 Safety Instructions Operator

The operator is obligated to plan and monitor all necessary measures to guarantee safe operation.

The operator must ensure:
– The use is as intended (Chapter 1.4).
– The safety of the device is analysed according to its application and environmental conditions and that recognizable risks (e.g. danger of injury at rope inlet and rotating drum) are assessed and eliminated.
– Before commissioning, the device has been examined and approved according to the appropriate international and national regulations.
– Operation is only carried out in a perfect, functional condition
– The safety devices are regularly examined for their effectiveness, only ropes are used, which correspond to a valid standard and are suitable for the application case. (Chapter 4.3)
– The required, personal protection equipment for the assembly, operation, maintenance and repair personnel is available and used.
– The operating manual must always be available at the device's operational location in a legible and complete condition.
– Only qualified and authorised personnel may operate, maintain, examined, and repair the device.The personnel has been regularly instructed on all appropriate issues con-

cerning industrial safety and environmental protection, and is familiar with the operating instructions and in particular with the therein contained safety instructions.
– The permissible load is clearly recognizable for the user.
– Signs have not been removed from the device and remain legible.
– No substantial changes have been carried out on the device.
– Required tests have been carried out and documented.
– The used spare and wearing parts correspond to the technical requirements specified by the manufacturer. This is guaranteed for original spare parts.

2.3 Safety Instructions User

All persons, who operate the device independently must be suitable for this purpose, familiar with the valid safety and accident protection regulations and have been assigned by the operator.

Only use the device when it is in a technically perfect condition and as intended (Chapter 1.4), with regard to safety and dangers, while considering the operating instructions.

Please check:

- Are the necessary safety devices (Chapter 2.1) present and functional?
- Has the brake function always been checked before beginning work?
- Is personal protection equipment worn, as required by local regulations?
- Has the load carrying equipment and rope been checked every time before beginning work and has the complete device being checked to a visual inspection?

– **Do not work negligently!**
- Stop defective device immediately and inform superior.
- First repair defects, then continue working.
- Replace damaged load carrying equipment and ropes. Repairs are not allowed.

– Only use original spare parts.
– Do not modify or alter the device. Attachments may neither impair safety nor function.

The following is prohibited:

	Transport of passengers
	Persons standing under lifted loads. Note: Warn persons in the immediate vicinity. We refer to the applicable German accident prevention regulations and, for use outside GERMANY, to the respective national regulations!
	Touching the drum and rope intake during operation.
	Work on live components.

Never:

- Loop the rope around the load.
- Pull the lifting rope over stationery parts or edges.
- Exceed the permissible load-carrying capacity.
- Manipulate safety devices.
- Pull or drag loads diagonally.
- Wrench jammed loads away.
- Unreel rope to rope attachment. Two coils must always remain on the drum.
- Work with untensioned rope operate without safeguard against jumping off the drum.
- Work without lifting limiter.

Avoid to ensure operational reliability:

– Continuous operation, as well as continuous inching operation, exceeding of the duty cycle of the motors, as well as remaining service life according to drive group and load.

Check before lifting the load:

- Is the load suspended safely in the load hook and is it completely accommodated in the hook? Is the safety flap closed?

For attaching the load, the respective national regulations for load carrying devices apply (in Germany the BGR 500, Chapter 2.8).

2.4 Safe Storage, Transport, and Assembly

Store clean, dry and protected. Take measures against corrosion on wire rope, hook and brake.

Transport and assembly by authorised persons, familiar with the valid safety and accident prevention regulations as well as with the operating instructions.

Please check:

- Are there any transport damages ? (Immediately notify the supplier).
- Is personal protection equipment worn? (Safety glass, safety shoes, if necessary helmet).
- Are suitable, standardised and examined hoisting gear and load securing devices used ? Dimensions and weights --> technical data (Chapter 3.3).

Always:

– Only fasten load securing device to base plate, gear, drum and/or drum shaft.
– Transport device protected against impacts and shocks, falling over or toppling.
– Assemble on stable, flat surface.
– Attach the device such a way, that neither the load nor other effects can change the position the position.

2.5 Save Service / Maintenance, Troubleshooting

Always observe the intervals specified or indicated in the operating instructions for recurring tests/inspections.
All persons, who work on the device must be suitable for this purpose, familiar with the valid safety and accident protection regulations and have been assigned by the operator.

Before starting special and maintenance measures:

- Have persons in the danger zone been informed and warned? Areas shut off?
- Is the device load-free and sufficiently cooled down?

Has the main switch been switched off and the device safeguarded against unexpected restarting? (Actuate emergency stop, close main switch and attach warning signs) Manual interventions in an operating device can lead to severe accidents. If switching on is nevertheless necessary (e.g. rope replacement), then this may only be carried out while observing special safety precautions.

– Is suitable protection equipment worn and have appropriate protective measures been met, if required? (e.g. falling protection when working at large heights)

– Have possibly released screw connections being tightened safely again?
– If necessary safety devices have been disassembled, have they been reassembled, examined, and documented immediately after concluding work?
– Are operating and auxiliary materials disposed safely and in an environmental-friendly manner?

2.6 Safety Instructions Electrical Equipment

Disconnect from the power supply when working on the electrical equipment.
Only permit authorised specialists to work on the electrical equipment. And electrical specialist is a person with suitable training and experience, as well as knowledge of the relevant regulations, who is able to recognize risks and avoid dangers, caused by electricity.
Always keep control cabinets closed.

Never:

Work on live parts.

During inspection, maintenance, and repair work:

- Disconnect device from power supply, safeguard against restarting
- First check that electrical components are disconnected from the power supply, then ground and short-circuit them, and finally insulate live neighbouring components.
- Always work with a second person, who when working on live components (exceptional case) can actuate the emergency stop button or main switch in case of an emergency. Use only voltage-insulated tools.

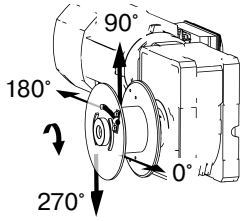
– Always replace fuses by fuses of the same type with the specified amperage.
– Never bypass fuses!
– Do not carry out any constructional and safety reducing modifications to the control units.
– Guarantee perfect grounding of the electrical system by a protective conductor system.

2.7 Noise Protection

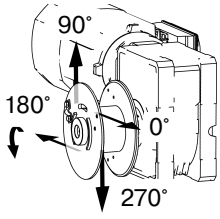
Noise does not represent a significant danger with this device.
Values --> technical data (Chapter 3.3).
Hearing protection can nevertheless be necessary according to the local conditions.

3. PRODUCT DESCRIPTION

Standard arrangement of drum rotation direction and rope discharge (see also Chapter 4.3.3). Can deviate in the case of customised versions.



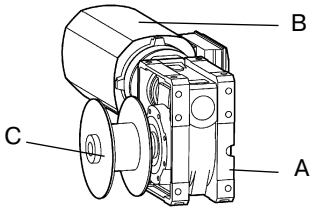
Clockwise (rh)



Anticlockwise (lh)

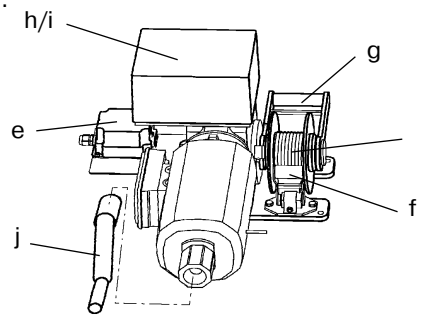
This direction cannot be changed for winches with 230 V AC - control. The rotation direction of the drum can be changed on all other winches by modifying phasing on the power supply.

3.1 Design Type ESF



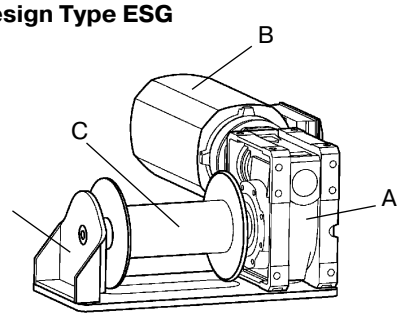
A	Gear with mounting holes
B	Brake motor (400 V and/or 230 V)
C	Drum, smooth

optional:



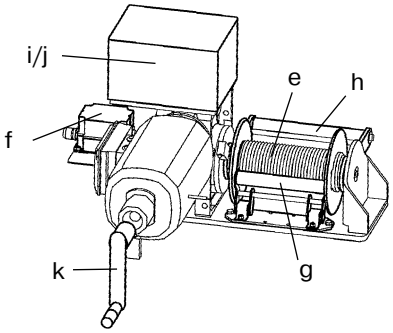
	Grooved drum
e	Limit switch
f	Mounting plate with pressure roll
g	Slack rope switch
h	Control unit (direct, indirect) with pendant pushbuttons
i	Control unit with pendant pushbuttons and electrical load limiter
j	Emergency Hand Operation

3.2 Design Type ESG



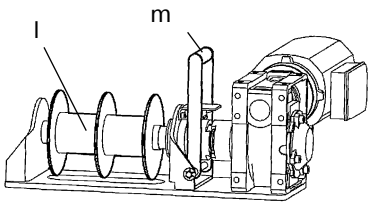
A	Gear with mounting holes
B	Brake motor (400 V and/or 230 V)
C	Drum, smooth
	Base plate with outer bearing

optional:



e	Grooved drum
f	Limit switch
g	Pressure roll
h	Slack rope switch
i	Control unit (direct, indirect) with pendant pushbuttons
j	Control unit with pendant pushbuttons and electrical load limiter
k	Emergency Hand Operation

Possible as special design:



l	Divided drum
m	Detachable drum

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3.3 Technical Data

Electrical Rope Winch Type ESF								
Voltage [V]		400				230		
Nominal load [kg]		**150**	**250**		**500**	**200**	**400**	
Use [8]		ABC	AB	ABC	ABC	ABC	ABC	
1st rope layer	Rope tractive force [kN]	1,5	2,5		5	2	4	
	Rope capacity [m]	3,4	2,8	3,4	3,2	3,4	3,2	
	Rope speed [m/min]	7,1	7,2	7	7,5	7,1	7,5	
2. rope layer	Rope tractive force [kN]	1,35	2,2	2,25	4.4	1,8	3,55	
	Rope capacity [m]	7,3	6	7,3	7	7,3	7	
	Rope speed [m/min]	7,9	8,2	7,8	8,5	7,8	8,5	
3. rope layer	Rope tractive force [kN]	1,25	2	2,05	4	1,65	3.2	
	Rope capacity [m]	11,5	9,6	11,5	11	11,5	11	
	Rope speed [m/min]	8,6	9,1	8,6	9,4	8,6	9,4	
Maximum coil number [4]		6	5	6	5	6	5	
upper layer	Rope tractive force [kN]	0,95	1,6	1,6	3,3	1.3	2,65	
	Rope capacity [m]	26	17,8	26	25	26	25	
	Rope speed [m/min]	11	11	11	11	11	11	
Rope diameter [6]	Non-twist-free rope [mm]	4 [1]	5 [1]	4 [2]	6 [1]	4 [1]	6 [1]	
	Min. tensile strength [kN]	8,3	13	8,7	18,7	8,3	18,7	
	Drive group [5]	1Am	1Am	1 Bm	1 Bm	1Am	1Am	
	Low-twist rope [mm]	4 [1]	5 [1]	4 [3]	6 [2]	4 [1]	6 [1]	
	Min. tensile strength [kN]	8,3	13	10,3	20,9	8,3	18,7	
	Drive group [5]	1Am	1 Bm	1 Bm	1 Bm	1 Bm	1 Bm	
	Drum rotating direction series	re	re	re	re	re	re	
Motor performance [kW]		0.37	0,55		1,1	0,55	1,1	
Rated current [A]		1,07	1,43		2,82	4,5	7,5	
Protection system		IP 54						
Duty cycle		S3-40 % at 120 c/h or S2-12 min						
Noise level [dB(A)]		⩽ 70				⩽ 75	⩽ 83 [7]	
Weight [kg] wo. rope, without options		18	21,5		38	23	43,5	
Type		150	250		500	200	400	

Electrical Rope Winch Type ESG																							
		400																230					
		150		**250**			**500**		**750**			**990**			**200**		**400**		**650**	
		ABC	ABC	AB	ABC	ABC	ABC	ABC	AB	ABC	ABC	AB	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
1st rope layer	Rope tractive force [kN]	1,5	2x0,75	2,5		2x1,25	5	2x2,5	7,5		2x3,75	9,9		2x4,95	2	2x1	4	2x2	6,5	2x3,25			
	Rope capacity [m]	10	2x5	8	10	2x5	10,5	2x6	12	12,5	2x7	12	14	2x7	10	2x5	10,5	2x6	14	2x7			
	Rope speed [m/min]	7,1	7,1	7,2	7	7	7,5	7,4	5,1	5,1	5,1	4,4	4,3	4,3	7,1	7,1	7,5	7,4	4,3	4,3			
2. rope layer	Rope tractive force [kN]	1,35	2x0,67	2,2	2,25	2x1,12	4,4	2x2,2	6,6	6,7	2x3,3	8,7	8,8	2x4,4	1,8	2x0,9	3,55	2x1,8	5,8	2x2,9			
	Rope capacity [m]	22	2x10	18	22	2x10	22	2x12	27	27,5	2x14,5	27	30	2x14,5	22	2x10	22	2x12	30	2x14,5			
	Rope speed [m/min]	7,9	7,9	8,2	7,8	15,7	8,5	8,2	5,8	5,7	5,7	5	4,9	4,9	7,8	7,8	8,5	8,2	4,9	4,9			
3. rope layer	Rope tractive force [kN]	1,25	2x0,62	2	2,05	2x1	4	2x2	5,9	6	2x3	7,75	8	2x4	1,65	2x0,82	3,2	2x1,65	5,2	2x2,6			
	Rope capacity [m]	34	2x16	28	34	2x16	35	2x20	43	44	2x23	43	48	2x23	34	2x16	35	2x20	48	2x23			
	Rope speed [m/min]	8,6	8,6	9,1	8,6	8,6	9,4	9	6,5	6,3	6,3	5,6	5,3	5,3	8,6	8,6	9,4	9	5,3	5,3			
Maximum coil number [4]		6	6	5	6	6	5	6	7	7	7	7	7	7	6	6	5	6	7	7			
upper layer	Rope tractive force [kN]	0,95	2x0,48	1,6	1,6	2x0,8	3,3	2x1,6	4,3	5.4	2x2,2	5,4	5,7	2x2,8	1,3	2x0,65	2,65	2x1,3	3,8	2x1,9			
	Rope capacity [m]	79	2x38	53	79	2x38	82	2x45	126	125	2x66	126	138	2x66	79	2x38	82	2x45	138	2x66			
	Rope speed [m/min]	11	11	11	11	11	11	11	9	8,8	8,8	7,9	7,4	7,4	11	11	11	11	7,4	7,4			
Rope diameter [6]	Non-twist-free rope [mm]	4 [1]	4 [1]	5 [1]	4 [2]	4 [1]	6 [1]	5 [1]	8 [1]	7 [2]	7 [1]	8 [2]	7 [2]	7 [1]	4 [1]	4 [1]	6 [1]	5 [1]	7 [1]	7 [1]			
	Min. tensile strength [kN]	8,3	8,3	13	8,7	8,3	18,7	13	33,4	26,6	25,5	34,8	31,4	25,5	8,3	8,3	18,7	13	25,5	25,5			
	Drive group [5]	1Am	2m	1Am	1 Bm	2M	1 Bm	2M	1 Bm	1 Bm	1Am	1 Bm	1Dm	1Am	1Am	2M	1Am	2M	1Bm	1Am			
	Low-twist rope [mm]	4 [1]	4 [1]	5 [1]	4 [3]	4 [1]	6 [2]	5 [1]	8 [2]	7 [3]	7 [1]	8 [2]	7 [3]	7 [1]	4 [1]	4 [1]	6 [1]	5 [1]	7 [2]	7 [1]			
	Min. tensile strength [kN]	8,3	8,3	13	10,3	8,3	20,9	13	37,2	31,5	25,5	37,2	31,5	25,5	8,3	8,3	18,7	13	25,5	25,5			
	Drive group [5]	1Am	1Am	1 Bm	1 Bm	1Am	1 Bm	1Am	1 Bm	1 Bm	1 Bm	1Cm	1Dm	1 Bm	1 Bm	1Am	1 Bm	2M	1 Bm	1 Am			
	Drum rotating direction series	re		re		re	re		re		re	re			re		re		li				
Motor performance [kW]		0.37		0,55			1,1		1,5			1,5			0,55		1,1		1,1				
Rated current [A]		1,07		1,43			2,82		3,8			3,8			4,5		7,5		7,5				
Protection system		IP 54																					
Duty cycle		S3-40 % at 120 c/h or S2-12 min																					
Noise level [dB(A)]		⩽ 70										⩽ 72			⩽ 75		⩽ 83 [7]		⩽ 83 [7]				
Weight [kg] wo. rope, without options		29		32,5			52,5		90			98			34		58		100				
Type		150		250			500		750			990			200		400		650				
			⫶			⫶		⫶			⫶			⫶		⫶		⫶		⫶				

Rope capacity for smooth drums. The rope capacity is reduced when using grooved drums.
1) Nominal strength of the individual wires min. 1570 N/mm².
2) Nominal strength of the individual wires min. 1770 N/mm².
3) Nominal strength of the individual wires min. 1960 N/mm².
4) Standard coil number: 3, the coiling behaviour decreases with increasing coil number.
5) Drive group according to DIN 15020 or FEM 9.511.
6) Other rope diameters on request.
7) Only when lowering with full load. When lifting noise level ⩽ 70 dB(A). From 80 dB(A) on, hearing protection must be provided.
8) Use
A = Lifting winch, pulling on inclined surfaces
B = Boat, vehicle salvage winches
C = Pulling winche (Pulling on horizontal surfaces)

⫶ Divided drum

The rope traction force results from masses connected to the rope winch (e.g. rope, hook, load securing devices, lifting racks, magnets, pay load) and applies to installation heights under 1000 m related to sea level.
The 1st rope layer, is the rope layer directly located on the drum.

4. INSTALLATION

The safety instructions (Chapter 2) apply, in particular for storage, transport and assembly (Chapter 2.4).

4.1 Mounting

– Connection construction: sufficient strength and rigidity, in order to safely accommodate occurring forces.
– Contact surface even, for tension-free attachment.
– Use screws, which do not loosen themselves.

Screwing specifications:

TYPE	Dim.	Strength	Tightening torque [Nm]	Number
ESF 150 / 200 / 250	M8	8.8	25	⩾ 4
ESF 400 / 500	M10	8.8	50	⩾ 4
ESG 150 / 200 / 250	M8	8.8	25	⩾ 4
ESG 400 / 500	M10	8.8	50	⩾ 4
ESG 700 / 750 / 990	M12	8.8	87	⩾ 5

4.2 Installation Position, Gear Venting

- Replace a plug screw by the provided vent screw depending on the installation position after mounting the rope winch.
- Turn the connection cover on the gear in such a way that the vent point upwards for winches type ESF as well as for the types ESG 150/200/250/400 and 500.

Rope winches of load class over 600 kg are also supplied without oil filling, if specifically required. **Installation position B3 applies, if no installation position has been specified**. If the operator changes in the assembly position, check the oil level and if necessary adapt before operation.

The installation position of the winch is determined by the position of the gear. Therefore, the position of the vent, oil inspection, as well as oil filling amount varies (- - > Appendix A and user operating instructions of the manufacturer).
The correct installation position is a precondition for safe operation and must be observed.
Installation position B6 and B7 (drum shaft vertical) are inadmissible, since safe winding of the rope is not ensured.
Allocation gear to winch --> Spare parts lists.

Application temperature:

– permissible temperature range: –20°C to +40°C.
– First warm up the winch without/with reduced load at temperatures below –10°C.
– When using outdoors, protect winch against weather influences. A brake motor with protection system IP 55 is favourable. Provide motor with protective canopy when installed in a vertical position.
– In particularly damp environment and with strong temperature fluctuations, the motor can be equipped additionally with a heating element as condensed water protection.

Condensation (moisture, temperature fluctuations) can result after longer downtimes in corrosion of the mechanical brake, thereby causing brake malfunctions. Corrosion protection can also not prevent this completely. The best is to use the winch regularly. A weekly test run and repeated switching on of the motor, can prevent jamming of the brake according to our experience.

4.3 Ropes

4.3.1 General Notes

– Select a rope suitable for your purposes.

The EN 12385-3 e.g. provides selection aids.

Wire ropes differ by:
– their design/construction. (twist-free, low-twist and non-twist-free rope). haacon recommends rope types 6x19M or 7x19 (not twist-free) and the type 17x7 (low-twist) according to EN 12385.
– the strength of the it individual strands. The minimum tensile strength of the rope results from this (–> technical data / type plate).
– The rope diameter (–> technical data / type plate).
– The impact direction. haacon recommends the use of right-handed ropes (Designation Z). Their use is obligatory with grooved drums.
– The surface. Only use galvanized or high-grade steel wire rope outdoors.

Instructions for use:

– One-stranded operation and non-guided loads: Low-twist or twist-free ropes.
– Multi-layer coiling: Rope with steel core.
– Rope ends: safeguard against unsplicing.
– Lubrication extends the service life.

Not permissible:

– **Using rope made of other material than steel, as well as plastic casing**
– **Corrosion, damage, or strong contamination**

4.3.2 Rope Attachment to the Drum

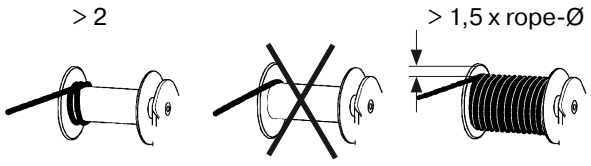
- Lead rope out through the opening of the flanged wheel.
- Position under the rope clamp slightly projecting and tighten.

Attach rope in such a way that it winds up unhampered onto the rotating drum. Kinking or leading across edges is prohibited. If the drum is marked with an arrow, then this indicates the drum rotation direction which must be observed when winding up the rope.

4.3.3 Rope Course

Arrange cable drives in such a way that ropes cannot be damaged by contacting each other or by touching immobile and moving constructions. The rope must be wound up evenly and tautly.

The rope length is correct, if:



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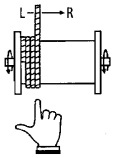
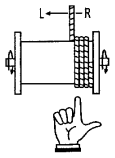
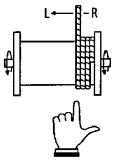
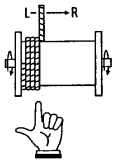
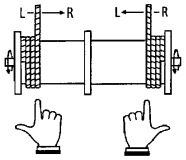
The rope coiling direction is correct, if:

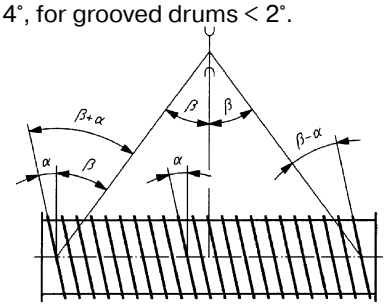
A) Right-handed rope = left-handed drum = standard
= Required with grooved drum

B) Left-handed rope = right-handed drum = exception

	I Rotation direction of the drum: right	II Rotation direction of the drum: left
A		
B		
		A left and a right-handed rope should be preferentially used on a divided drum.

The rope direction is correct, if:

The deflection pulleys are arranged centrically to the drum at a minimum distance. Largest rope deflection angle for smooth drums < 4°, for grooved drums < 2°.



β = Rope deflection angle at the roller

β-α or β+α = Rope deflection angle at the drum

α = Angle of the drum grooves

Measurement (centre drum to centre roller) for standard rope winches.

TYPE	Minimum distance [m]	
	Drum, smooth	Drum, grooved
ESF 150 / 200 / 250	0,45	0,95
ESF 400 / 500	0,5	1,0
ESG 150 / 200 / 250	1,35	2,9
ESG 400 / 500	1,6	3,4
ESG 700 / 750 / 990	2,1	4,5
Rule of thumb	7,5 x drum width	16 x drum width

4.3.4 Rope End Connections

Permissible according to EN 14492-1:

- Asymmetrical rope locks, which correspond to EN 13411-6.
- Symmetrical rope locks, corresponding to EN 13411-7 with rope diameter < 8 mm.
- Metal and synthetic resin socketing, which correspond to EN 13411-4.
- Ferruling and grouting according to EN 13411-3.

4.4 Load Hooks

Load hooks are permissible according to DIN 15400 or UNI 9465.
Unintentional loosening of the load must be prevented.
Hooks with a safety catch fulfil these requirements.

5. COMMISSIONING

Observe safety notes in Chapter 2.

- Have an expert check the devices before commissioning (Qualified person, Chapter 7).
- Carry out the examination according to the supplied test book and following the specifications of the operating instructions (chapter 7) and document the results in the test book.

5.1 Power Supply

Observe safety notes in Chapter 2.6.
Connecting electrical rope winches by means of power plugs is not permissible according to DIN EN 60204-32.

- Connection of the power supply to the designated parts L1/ L2/L3/N/PE in the terminal and/or switchbox. --> Connection and/or circuit diagram. *In addition:*
- Introduce cables via cable connections, connect protective conductor correctly.
- Provide the strands with end sleeves.
- Safeguard supply with 1 and/or 3-pole line safety switch with the characteristic B or C. The rated current of the contactors may not exceed the value of 10 A, in order to prevent fusing of the contactors in case of a short-circuit.
- Use contactor, supply cable with main switch, emergency stop with lock. The main switch must be freely accessible for maintenance staff.
- Power supply according to the Standards DIN IEC 60038 and DIN EN 50160. Voltage difference at the supply terminals of the rope winch max. ± 5 %. Observe power supply specifications in the circuit diagram.
- Interrupt the brake coil supply during lifting operation and when pulling loads on inclined services on the direct current side (= faster response of the brake).
  This is already available in the case of factory installation of the control unit.
  Procedure -->User manual of the motor manufacturer --> Chapter electrical connections.
  Allocation gear to winch --> Spare parts lists.Motor rotation direction --> Chapter 3.2.

5.2 Minimum requirements

Rope winches must correspond to the requirements of the valid international and national standards and guidelines.
It is required in particular that:

- Winches are equipped with lifting and lowering limiters (Limit switches).
- Rope intake positions in the work area of the operating personnel and in the traffic area are safeguarded.
- Winches are equipped with overload protection, if jamming or trapping of the load cannot to be prevented and recognized and forces thereby occur, which overload the winch. An overload protection is required starting from a load-carrying capacity of 1000 kg or a towing force of 10 kN.
- Winches are provided with an emergency stop function.
- Control equipment for initiating and stopping the movement are equipped with an automatic reset.
- Control equipment for lifting (reeling the rope) and lowering (unreeling the rope) is available and reciprocally locked.
- Slack rope formation does not cause in the endangering conditions.
- The load carrying capacity is clearly recognizable for the user.

5.3 Options

haacon mounts the limit switches for options. All switches are connected, wired and checked, if the control unit has been assembled in the factory. Fine adjustments must be carried out on-site according to the operating conditions (Chapter 8).
In all other cases, the operator is responsible for wiring the options correctly.

6. OPERATION

The safety instructions specified in Chapter 2 apply.

- Always work with the consideration of safety and risks.
- Never overload the winches
- When changing the rotation direction of the motor wait until it has come to a standstill.
- Observe duty cycle (type plate, technical data in Chapter 3.3).

  For example 40% ED (according to VDE 0530) means, that the motor can operate for 4 minutes during a period of 10 minutes. It is thereby irrelevant how heavy the load is and whether the 4 minutes are consecutive or in intervals. S2-12 min. means that the motor can run continuously for 12 minutes, afterwards however must cool down to the ambient temperature.

- The load must be safely suspended in the load carrying equipment and both must be safely hooked into the load hook and be located on the base of the hook. The safety catch of the hook must be closed.
- Always initiate load movement with lowest speed. First tension the rope, it may not be slack at the beginning of the load movement.
- Continuously observe load during the movement.
- Pay attention to rope damages. Immediately report defects to the responsible person. First repair defects, then continue working.
- Carry out required examinations and observe maintenance intervals.

Control elements:

Lifting / reeling the rope		Lowering / unreeling the rope
Lifting / reeling the rope (slow / fast)		Lowering / unreeling the rope (slow / fast)

Pressing initiates the movement, releasing stops it.

Function and operation of the options see Chapter 8

7. EXAMINATION, SERVICE, MAINTENANCE

Winches, lifting and towing appliances including their supporting structure must be examined by an expert:

- Before commissioning.
- After substantial modifications before recommissioning
- At least once annually.
- If unusual events have taken place, which could have a damaging effect on the safety of the winch (extraordinary examination, e.g. after longer disuse, accidents, natural occurences).
- After repairs, which could affect the safety of the winch.

A person is an expert, who due to his professional training and experience has sufficient knowledge in the area of winches, lifting and towing appliances and is familiar with the relevant national industrial safety and accident prevention regulations as well as with the general rules of technology (laws, standards, technical rules and regulations) in such a way, that he can assess the safe operating condition of the device.

The examinations must be arranged by the operator.

- Test results and met measures must be documented in the provided test book.
- All monitoring, maintenance and service work serves safe operation and must therefore be carried out carefully and conscientiously.
- As far as possible carry out the tests without load.

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7.1 Inspection intervals

The specified monitoring and maintenance intervals apply within the assumed motor group for normal use and single shift operation. The intervals must be reduced in the case of heavy duty operations (e.g. frequent operation under full load) or special environmental conditions (e.g. heat, dust).

7.2 Examination before Commissioning and after substantial Changes before Recommissioning

The examination comprises the correct installation and operational readiness and consists essentially of visual examinations and functional tests. They should guarantee that the device is in a safe condition and that if necessary defects and damages, which are e.g. caused by inappropriate transport, are identified and repaired. The scope of the examination is described in the enclosed test book.

The examination after substantial changes depends on kind and extent of the substantial change and must be carried out following the examination before commissioning.

7.3 Recurring Examination

The examinations are essentially visual examinations and functional tests, whereby the condition of components regarding damage, wear, corrosion, or other changes is assessed; the completeness and effectiveness of the safety devices must also be determined. The function and brake tests must be accomplished with a load, which nearly achieves the permissible load-carrying capacity. The overload protection must be examined with a test load according to Chapter 8.7. The scope of the examination is described in the enclosed test book.

	Examination at commissioning (Chapter 7.2)	Examination before beginning work	Examination / Maintenance every 3 months	Examination / Maintenance every 12 months (Chapter 7.3)
Screw connections	X		X	X
Brake function	X	X		X
Brake – Air gap [2]				X
Switch [1] End position, slack rope, coupling, emergency hand, control elements, cable, switchbox	X			X
Overload protection	X			X
Lubricate and clean rope	X		X	
Rope and end mountings[3]	X	X		X
Load hook und load carrying equipment [4]	X	X		X
Gear – oil level [5]				X
[1] If available, --> Chapter 8, [2] --> Chapter 7.7, [3] --> Chapter 7.5, [4] --> Chapter 7.6, [5] --> Chapter 7.8				

7.4 Determination of the Service Life Consumption

The theoretical service life ("D") of the haacon rope winches is according to motor group:

Motor group	1Dm	1Cm	1 Bm	1Am	2M
	M1	M2	M3	M4	M5
D [h]	100	200	400	800	1000

After expiry of D, the winch must be taken out of service and forwarded to the manufacturer for a general overhaul. The operator must determine the consumption of this service life annually and document this on the appropriate forms in the test book.
Calculation basis --> European Standard FEM 9.755

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7.5 Examination Rope

The rope examination is essentially a visual examination. The rope must be examined before each shift for outer damages, deformations, incipient cracks, and corrosion. The rope must be examined by an expert at least once annually. Notes on appropriate accomplishment can be inferred from the DIN 15020 Sheet 2 "Principles Relating to Rope Drives; Supervision during Operation", as well as EN 12385 1-4 Steel wire ropes - Safety.

The following must be examined among others according to these criteria:
- Type, number, and position of wire breaks
- Temporal sequence of wire break formation
- Decrease of the rope diameter
- Corrosion
- Abrasion
- Deformations
- Effect of heat
- Resting time
- Rope attachment

Immediately report defects to the responsible person. First repair defects, then continue working.
- Immediately replace rope, if a strand has broken (use original spare part).

7.6 Examination Load Hook

The examination of the load hook is essentially a visual examination.
Before each shift, check the hook for outer damage, incipient cracks, wear, expansion, corrosion, and functionality of the safety catch of the hook.

Immediately report defects to the responsible person. First repair defects, then continue working. Only use original spare parts.

7.7 Brake motor

- Keep cooling air paths clean.
- Always examine the function of motor and brake before beginning work.
- Check gaskets and power input in certain time intervals. (Compare to power input on the type plate).
- Examine the air gap of the brake at least once annually and reset if necessary.

Observe safety instructions Chapter 2.5 and 2.6. Only carry out maintenance when disconnected from the mains supply.

Execution -->User manual of the motor manufacturer, Chapter Maintenance or Service. Motor allocation to the individual winch series --> Spare parts lists.

7.8 Gear

Load-carrying capacity < 600 kg oil filling, life-long lubrication.
Load-carrying capacity > 600 kg oil filling, check oil level annually.
Check gaskets of the outlet shafts annually.
An oil change is theoretical not required during the service life.

Observe safety instructions Chapter 2.5 and 2.6. **Only carry out maintenance when disconnected from the mains supply.**

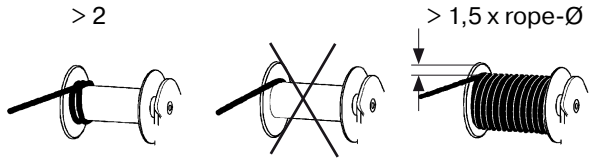
Execution -->User manual of the motor manufacturer, Chapter Maintenance or Service. Gear allocation to the winch series --> Spare parts lists.

8. OPTIONS

Some of the available equipment variations (options) are legally required.

8.1 Limit switch

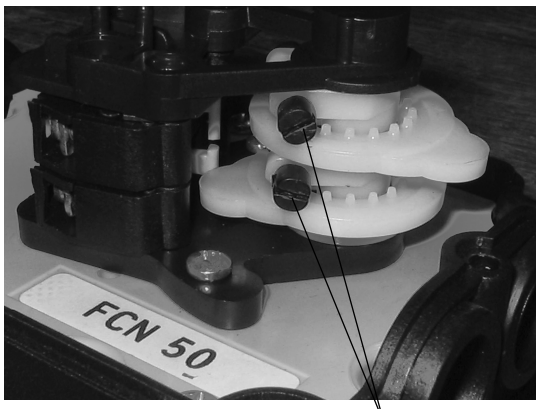
Consisting of limit switch and mounting set. The limit switch counts the rotations of the drum. It contains two switching elements for limiting the upper and lower end position.
An end stop is required according to DIN EN 14492-1.
Selects the end stop in such a way, that:



- Hooks, load carrying equipment, and load may not knock against the rope winch or its supporting structure.

The accuracy of the end stop decreases with increasing length of the reeled rope.

Adjusting:
- Remove protective cover
- Drive to the "lower" end position (rope unreeled). Adjust a tappet with adjusting screw until the switch responds.



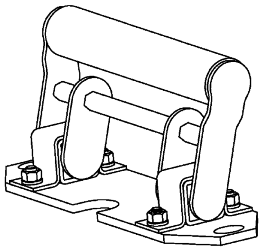
Adjusting screws

- Reel rope briefly, stop, unreel again and check "lower" end position.
- Reel rope and drive to "upper" end position. Adjust the other tappet with adjusting screw until the switch responds.
- Unreel rope briefly, stop, reel again and check "upper" end position.
- Drive to the "lower" and "upper" end position again and correct until end positions are reached satisfactorily.
- Assemble protective cover again.

The limit switch is correctly connected and approximately preset, if the control unit is supplied by the factory. Otherwise it is the responsibility of the operator to correctly connect the two switching elements to the control unit.

The limit switch is a safety component.
- Examine regularly, however at least once annually, as well as before commissioning.

8.2 Pressure Roll

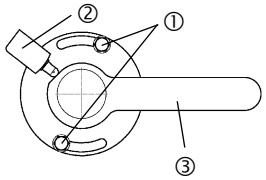


Applies rope coils to the drum. Designed for up to three rope layers.

Before commissioning, adjust the position of the pressure roll to the requirements (number of rope layers).(--> oblong holes)

8.3 Slack Rope Switch

Interrupts the drive, as soon as the rope loses its tension, e.g. if the load jams when "lowering" or reaches the ground. Prevents the rope coils jumping off the drum. Prevents during renewed lifting cross layering of the rope. (rope damage).
Not available for divided drums!



The slack rope switch is made of a spring mounted roll arm ③. If the rope loses its tension, then the limit switch② is triggered by a cam segment. The motor stops.

With known rope outlet, the slack rope switch has been adjusted in the factory.

- Adjust the switch before commissioning according to the local conditions and check its function. For this purpose, loosen screws ① and rotate the arm appropriately. Then tighten screws ① again.

The slack rope switch has already been connected according to the circuit diagram, if the control unit has been supplied by the factory. Otherwise it is the responsibility of the operator to correctly connect the switching element to the control unit.

The slack rope switch is a safety component.

– Examine regularly, however at least once annually, as well as before commissioning.

8.4 Emergency Hand Operation

The motor brake starts automatically, if the power supply is interrupted. The load movement is stopped immediately.
Lower load:

- Screw in brake lever, vent brake.

Lift load:

- Attach crank to motor, turn anti-clockwise , vent brake.

⚠	Emergency hand operation only when disconnected from power supply. Exceptional situation! Therefore special attention is necessary. -->Safety instructions in Chapter 2. Only assign instructed personnel.
⚠	Do not stay under suspended loads or in the danger area. Secure danger zone.
⚠	LOWERING - NOTE! The load starts moving independently after venting the brake. The load is braked again by releasing the brake lever. Do not exceed suitable lowering speed. **Only lower load step by step!** If necessary, use the provided crank for lowering.
	LIFTING – NOTE! Danger of injury by the attached crank, if this is not sufficiently secured before venting the brake. **First hold crank, then vent brake!** **First release the brake lever, then the crank carefully!**

Inserting the crank interrupts the power supply of the motor. The appropriate switch has already been connected according to the circuit diagram, if a factory control unit is installed. Otherwise it is the responsibility of the operator to correctly connect the switching element to the control unit.

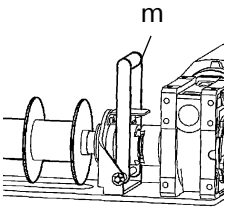
The switch is a safety component.

– Examine regularly, however at least once annually, as well as before commissioning.

⚠ The operator must ensure, that the brake is not inadvertently vented during normal operation.
e.g. the lever can be unscrewed with 400 V drive units and screwed in into the crank mounting.

8.5 Drum Release

⚠ **Drum release only without load!**
Only for boat, vehicle salvage, and towing winches; not permissible for lifting winches!



The drum can be separated from drive unit and brake to remove the unloaded rope.

- Move coupling lever (m) toward the drum.

The coupling is positive locking against independent release.

- If necessary, turn the drum manually and release coupling.

The rope is not braked when taking off manually. Slack rope can develop, causing the rope coil to jump of the drum. A pressure roll (Chapter 8.2) can prevent this.
The coupling is equipped with a switch, which interrupts the power supply of the motor. This switch has already been connected according to the circuit diagram, if a factory control unit is installed. Otherwise it is the responsibility of the operator to correctly connect the switching element to the control unit.
The switch is a safety component.

– Check regularly, howeverat least once annually.

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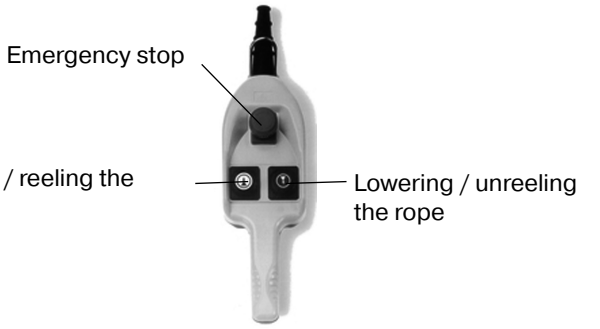
8.6 Control with Pendant Pushbutton, direct

The control unit is attached to the gear, if not ordered otherwise. The motor and a pendant pushbutton (standard supply line 2 m) are connected to the control unit. The current is conducted via the pendant pushbutton *directly* to the motor.



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- Pressing initiates the movement, releasing stops it.

Check rotation direction of the motor before initial use. (Chapter 3.2 and 5.1)

8.7 Control with Pendant Pushbutton, indirect

The control unit is attached to the gear, if not ordered otherwise. The motor, pendant pushbutton (standard supply line 2 m) and depending upon equipment, all electrical switches (end position 8.1, slack rope 8.3, emergency hand 8.4, coupling 8.5) are connected to the control unit. The power supply to the motor is accomplished *indirectly*, by control circuits. Pendant pushbutton with control units similar to Chapter 8.6. Circuit diagram –> Control box. The operator provides the power supply (--> Chapter 5.1), examines the rotation direction of the motor and the function of the switches. A warning lamp (red) on the control box indicates a "malfunction" of normal operation.

Possible causes:

Emergency stop pressed	First release, then continue working.	Lamp extinguishes
Slack Rrpe switch actuated	Only „Lifting“ operation is possible (reeling the rope).	Lamp extinguishes, as soon as the rope is tensioned again.
Emergency hand switch actuated	Release emergency hand switch.	As soon as the actuation of the switch has been released, the lamp extinguishes and continuing work is possible.
Coupling switch actuated	Engage coupling.	If the switch is no longer actuated, the lamp extinguishes and continuing work is possible.

The lamp does not light up in the case of disconnection in the end positions (option 8.1). The device can be however only driven in the opposite direction.

8.8 Control, indirect, with Electrical Load Limiter

Corresponds in design and working method basically to the control with pendant pushbutton, indirectly (Chapter 8.7)

The power consumption of the motor is additionally measured by means of an active power meter during "lifting" operation. If the current exceeds (overload) the set value (level), the motor is switched off and the red lamp on the switchbox lights up.

If there is no "malfunction" according to Chapter 8.7, then there is an overload shutdown. Then only a "lowering" movement (unreeling the rope) is possible. "Lifting" is possible again after eliminating the overload.

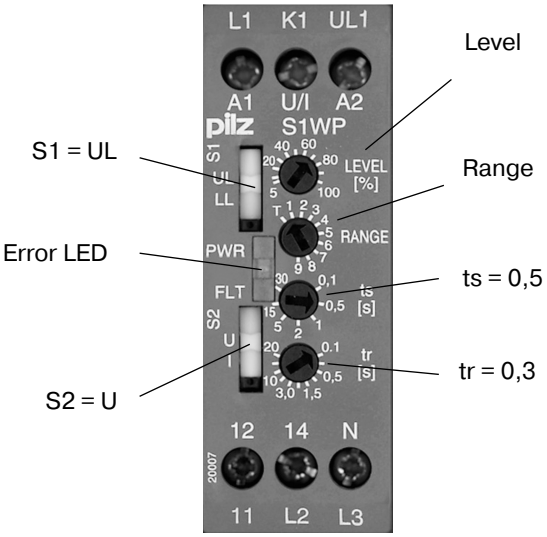
The active power meter has been adjusted in the factory.

– As a safety component, this must be regularly, however at least once annually checked by the operator as well as before commissioning.

Observe in this respect:

– Does the Ident-No. correspond(ID.-No.: 890060) to the specifications of the type plate of the active power meter?
– Only use devices with same ID No.!

S1 = UL;	S2 = U;	ts = 0,5 s;	tr = 0,3 s



Settings – parameters range and level:

Type	Power supply voltage.	SW150	SW250	SW500	SW750	SW990
Range	230VAC 400VAC	-- 1	4 2	8 2	7 3	-- 7
Level % ± 5 %	230VAC 400VAC	-- 70 %	85 % 55 %	70 % 100 %	80 % 100 %	-- 90 %

Disconnection at 110% of the nominal load!

– Check overload protection with test load and possibly correct the setting "Level" (increase of level = increase of overload limit).

According to DIN EN 14492-1, the disconnection must take place in a range between 110% and 125% of the nominal load.

After a running in phase (approx. 40 operation hours), the efficiency of the winch can have improved, so that a correction is required.

9. TROUBLESHOOTING

Avoiding injuries and damages:

- Malfunctions may only be repaired by sufficiently qualified and authorised persons.
- Secure devicece against unintentional start-up. I.e.switch main switch off and secure with lock.
- Secure range of action of moving components.
- Safety instructions --> Chapter 2.

Malfunction	Possible causes:	Rectification
The motor does not run	No power supply	Check the power supply connection
	Fuse melted	Replace the fuse
	Interruption in the control cable The brake does not vent	Refer to the "The brake does not vent" fault
	The switching unit in the control switch is defective	Replace the switching unit
	Start up or operating capacitor defective (220 V)	Replace the capacitor
The motor runs - the load is not hoisted	The overload protection (as of 1000 daN rope tensile force) is released (with overload)	Reduce the load to the nominal load
	The overload protection (as of 1000 daN rope tensile force) is released (with load ⩽ nominal load)	Check the overload protection and readjust it if required
The motor hums and has a high power consumption	Coil or capacitor defective (220 V)	Repair motor
	The rotor drags	
	The brake does not vent	Refer to the "The brake does not vent" fault
Winding damage	Overload (mechanical or electrical)	Repair motor
The motor does not brake or the castor is excessive	Worn or oiled brake pad	Completely replace the pad support
	Excessive air gap	Readjust the air gap
	Circuit fault after electrical circuit modification	Check the brake's connection in accordance with the circuit diagram
The brake does not vent	Defective brake coil	Replace the brake coil
	Defective rectifier	Replace the rectifier
	Exceedance of the permissible air gap due to worn brake pad	Readjust the air gap, replace the pad support if required
	Voltage drop in the supply line > 10 %	Assure correct supply voltage
The fuses blow or the motor protection is released	Motor or line short circuit	Eliminate the short circuit
	Short circuit to frame or winch short circuit in the motor	Repair motor
	Incorrect motor circuitry	Correct the circuitry
	Incorrect fuse type	Use appropriate fuse

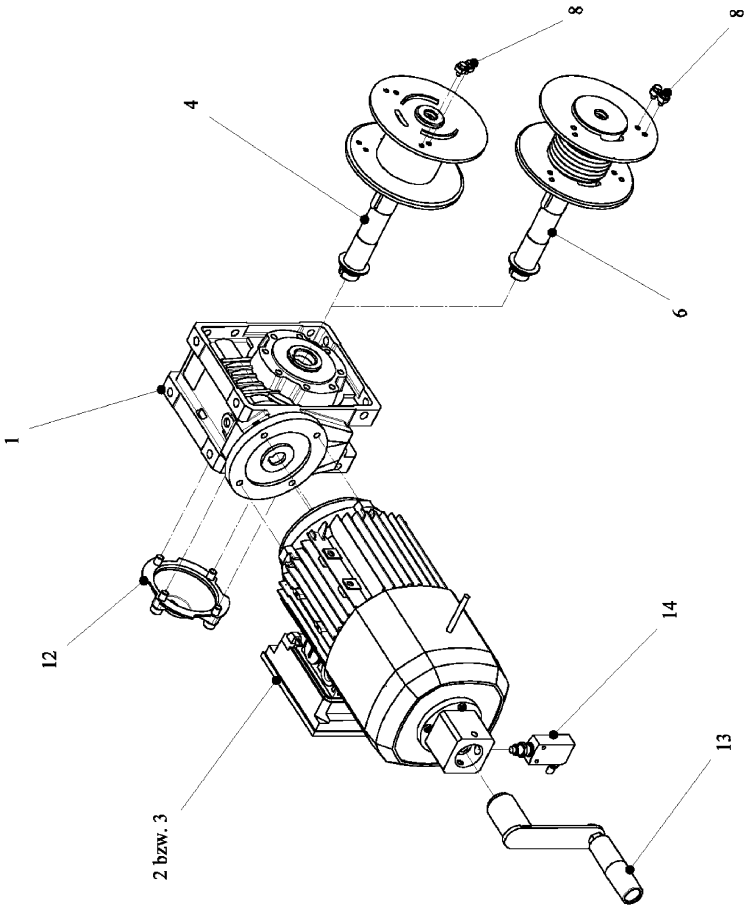
Our service department will be glad to help you, if you have any questions (Chapter 1.3).

10. DECOMMISSIONING

Avoid dangerous injuries and damages, therefore observe:

- Safety instructions --> Chapter 2.
- Secure work area.
- Disassembly in reverse sequence of assembly (Chapter 4).
- Dispose the device and the contained materials in an environmental friendly manner.

Typ ESF



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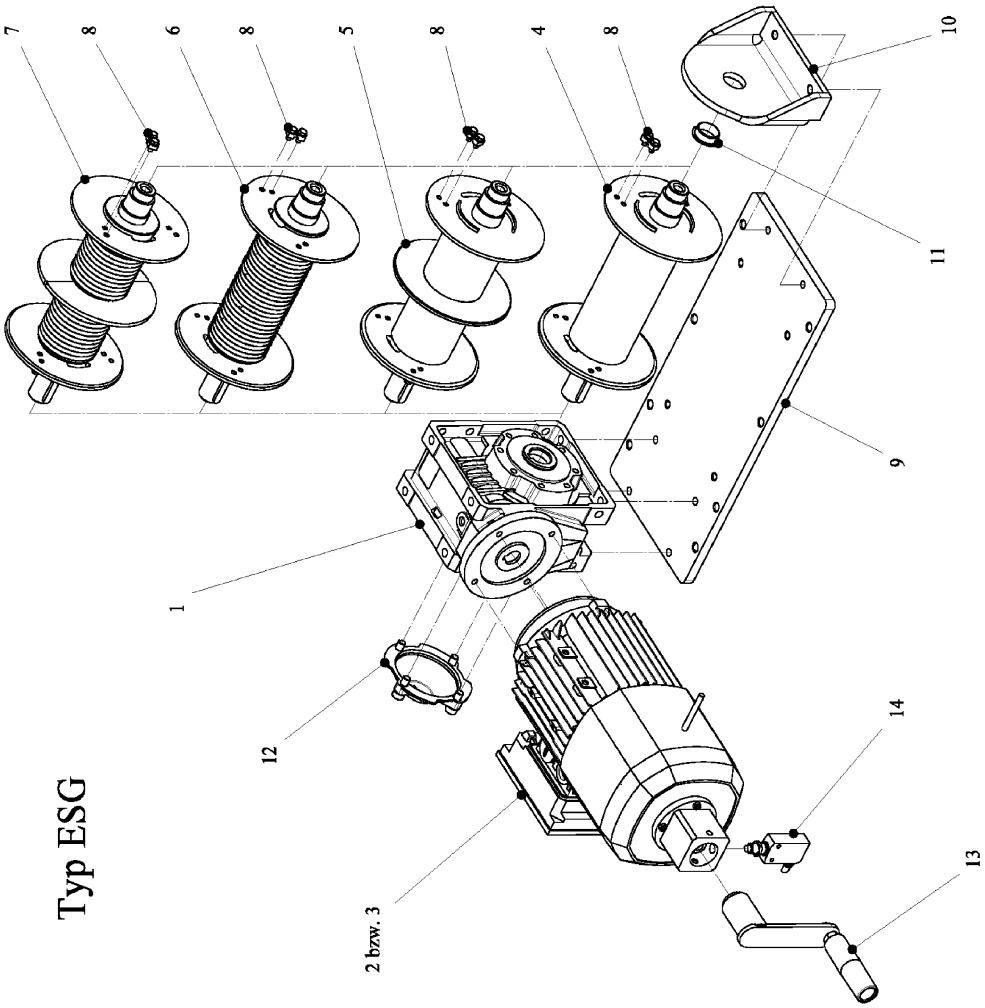

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		400 V								230 V				
Pos.		**ESF150**	**ESF250**	**ESF500**	**ESG150**	**ESG250**	**ESG500**	**ESG750**	**ESG990**	**ESF200**	**ESF400**	**ESG200**	**ESG400**	**ESG650**
1		126716	126723	126718	126716	126723	126718	123719	126787	126723	126718	126723	126718	126787
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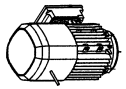
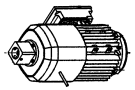
2		126721	126717	126725	126721	126717	126725	126788	126788	123731	126733	123731	123733	123768
	-->	BN71B4 -FD03	BN80B4 -FD04	BN90S4 -FD14	BN71B4 -FD03	BN80B4 -FD04	BN90S4 -FD14	BN90LA4 -FD26	BN90LA4 -FD26	REBK80 -B8	REBK90 -B8	REBK80 -B8	REBK90 -B8	REBK90 -B8
3		126722	126724	126726	126722	126724	126726	126790	126790	126732	126734	126732	126734	126772
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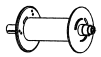
4		215049	215049	215062	215055	215055	215083	215086	215086	215049	215062	215055	215083	215086
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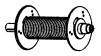
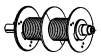
6		215093	215093	215075	215096	215096	215082	215110	215110	215093	215075	215096	215082	215110
7		--	--	--	215139	215139	215142	215147	215147	--	--	215139	215142	215147
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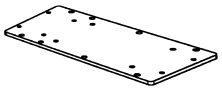
9		--	--	--	132955	132955	132810	132872	132872	--	--	132955	132810	132872
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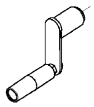
11		--	--	--	126740	126740	126742	126743	126743	--	--	126740	126742	126743
12		126735	126735	126736	126735	126735	126736	126737	126737	126735	126736	126735	126736	126737
13		132950	132999	132925	132950	132999	132925	132925	132920	132950	133102	132950	133102	133102
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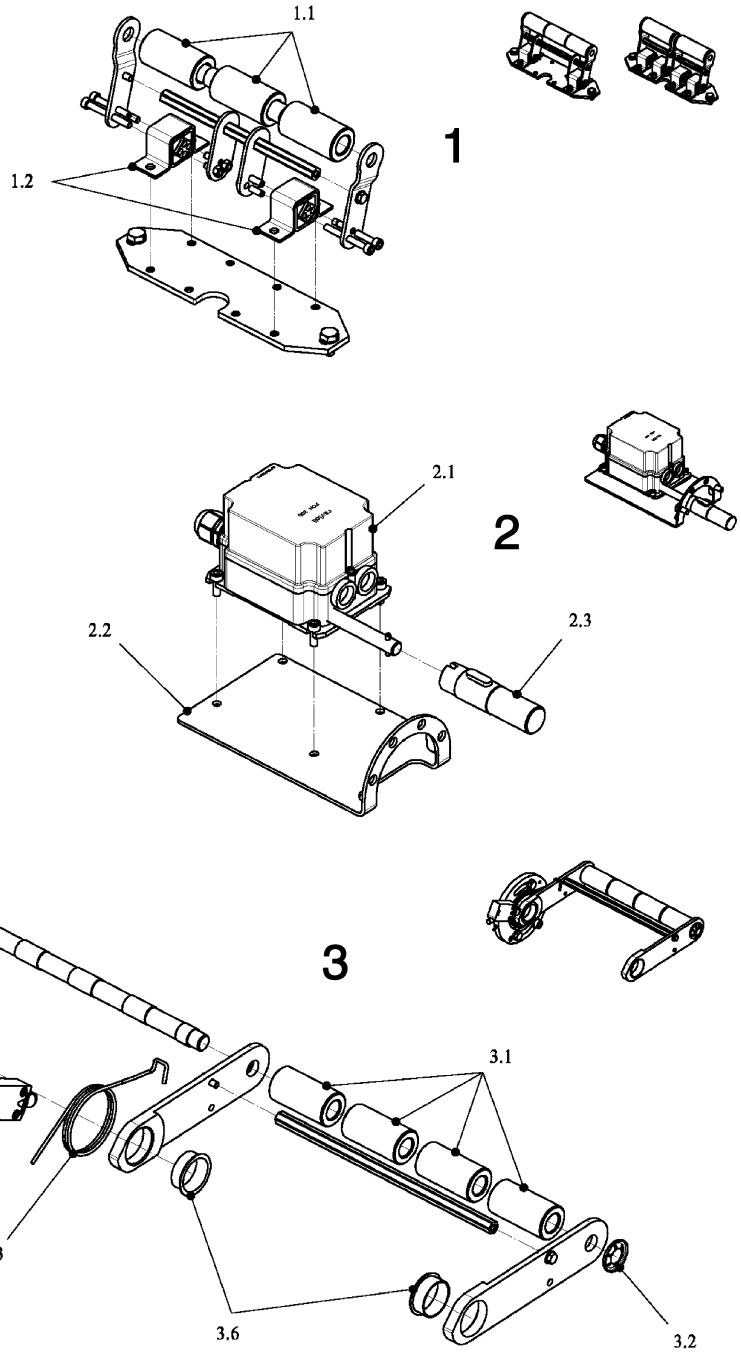
Typ ESG



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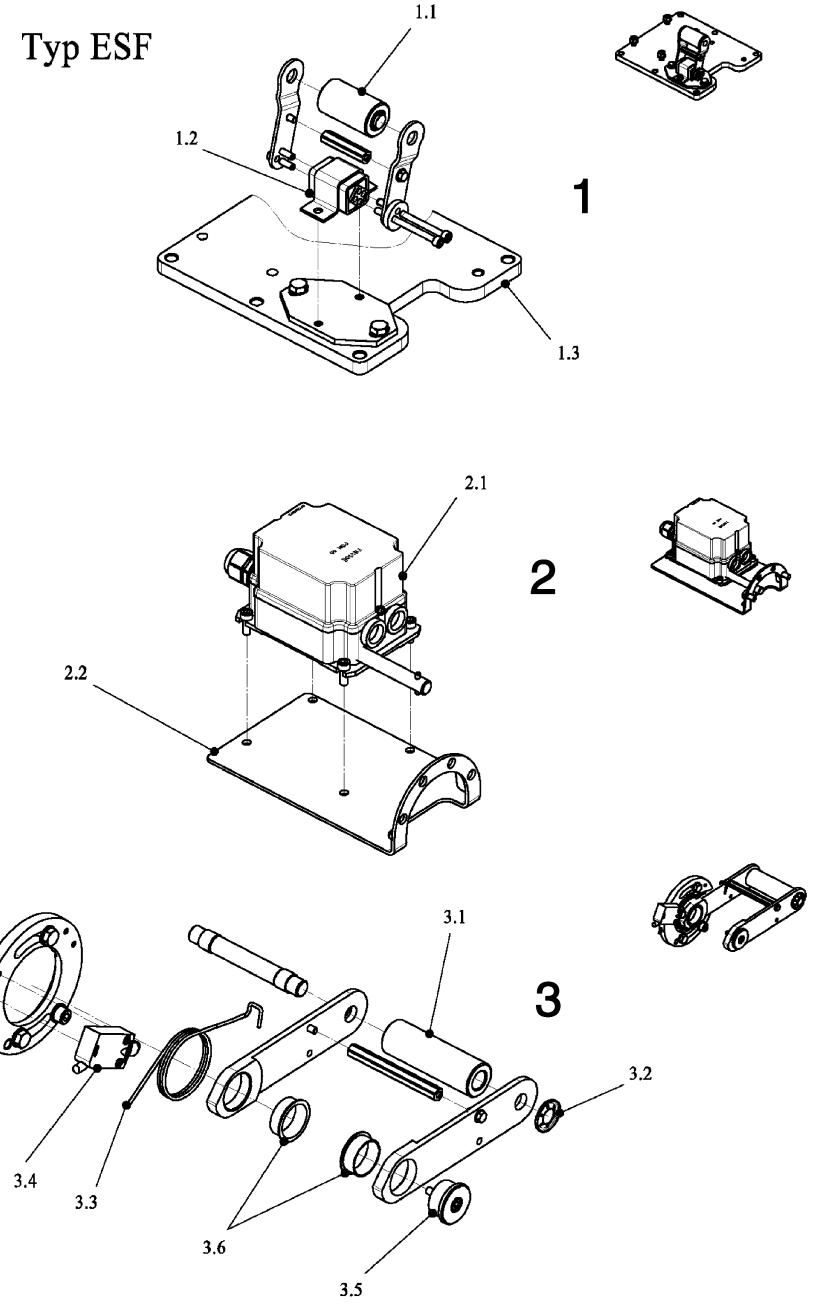

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			400 V								230 V					
	Pos.		**ESF150**	**ESF250**	**ESF500**	**ESG150**	**ESG250**	**ESG500**	**ESG750**	**ESG990**	**ESF200**	**ESF400**	**ESG200**	**ESG400**	**ESG700**
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		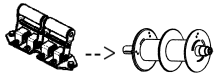	--	--	--	215117	215117	215130	215144	215144	--	--	215117	215130	215144
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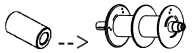
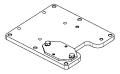
			--	--	--	132974	132974	132828	132888	132888	--	--	132974	132828	132888
	1.2		126747	126747	126747	126746	126746	126748	126749	126749	126747	126747	126746	126748	126749
	1.3		132945	132945	132824	--	--	--	--	--	132945	132824	--	--	--
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		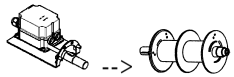	--	--	--	215114	215114	215129	215143	215143	--	--	215114	215129	215143
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		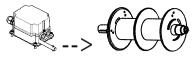	--	--	--	126761	126761	126761	126761	126761	--	--	126761	126761	126761
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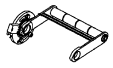
3	3		215053	215053	215067	215056	215056	215077	215095	215095	215053	215067	215056	215077	215095
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	3.4		126757	126757	126757	126757	126757	126757	126757	126757	126757	126757	126757	126757	126757
	3.5		132954	132954	132841	--	--	--	--	--	132954	132841	--	--	--
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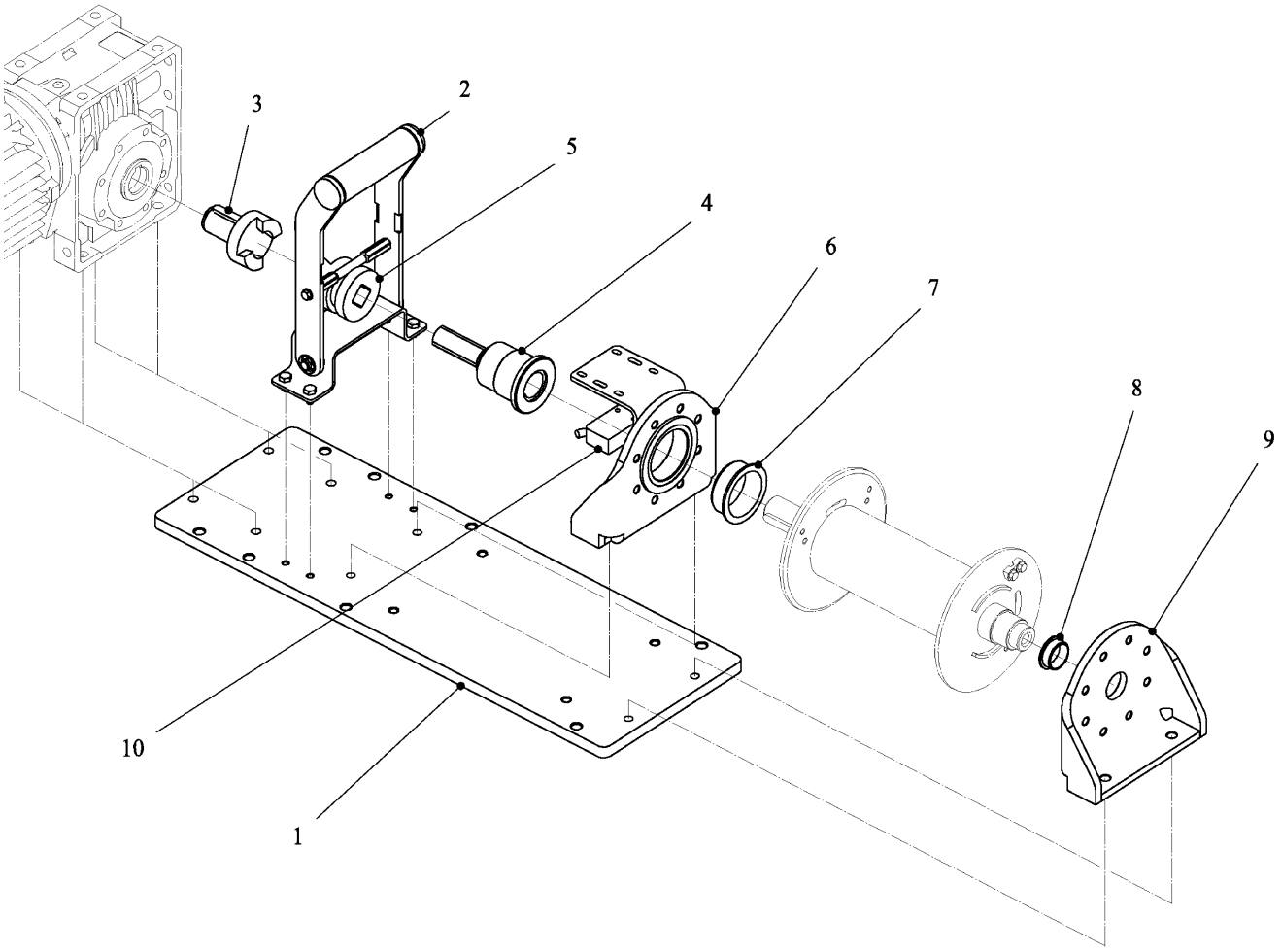

		Bestell - Nr. / Order - no. / Nº code / Ref. / Cod. art. / N.º enc.							
		400 V					230 V		
Pos.		ESG150	ESG250	ESG500	ESG750	ESG990	ESG200	ESG400	ESG700
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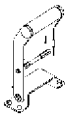
2		132985	132985	132860	132900	132900	132985	132860	132900
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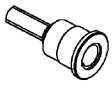
4		132970	132970	132851	132901	132901	132970	132851	132901
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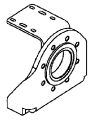
6		132978	132978	132860	133115	133115	132978	132860	133115
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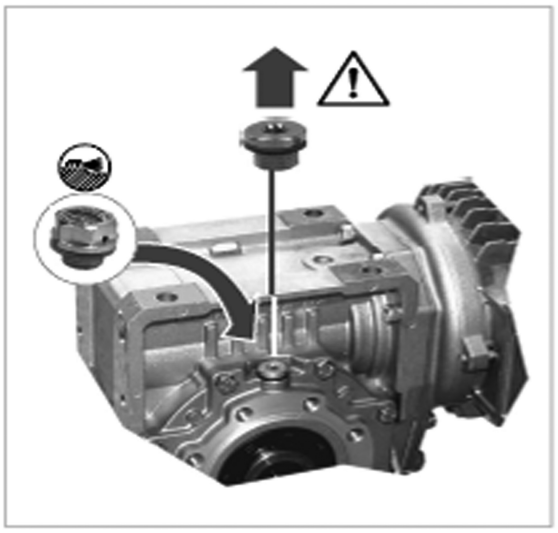
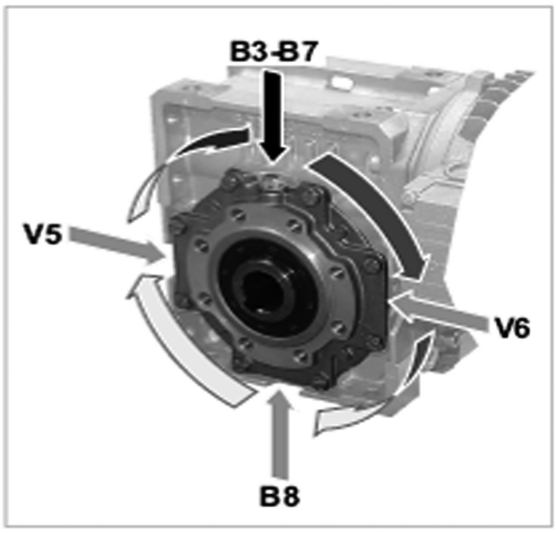
8		126740	126740	126742	126743	126743	126740	126742	126743
9		132988	132988	131862	132874	132874	132988	132862	132874

Anhang A / Appendix A / Annexe A / Anexo A / Appendice A / Anexo A

W63, W75, W86



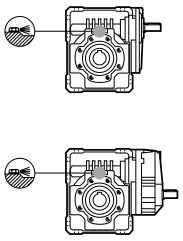
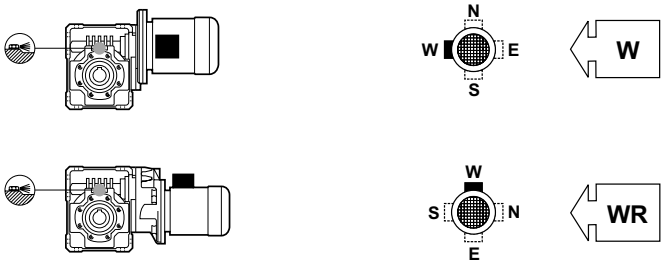
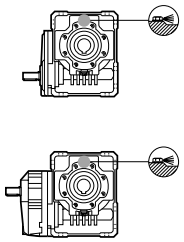
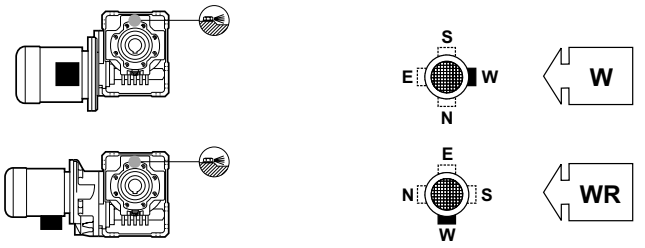
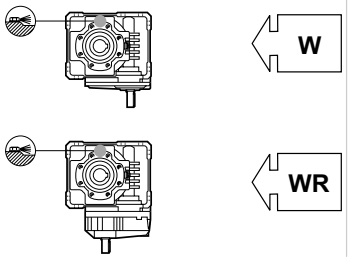
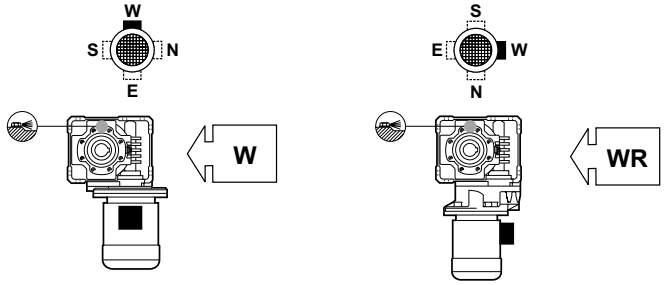
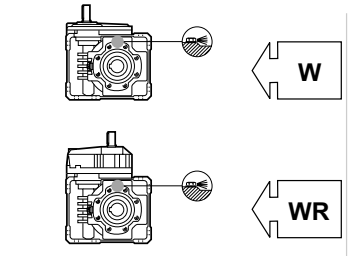
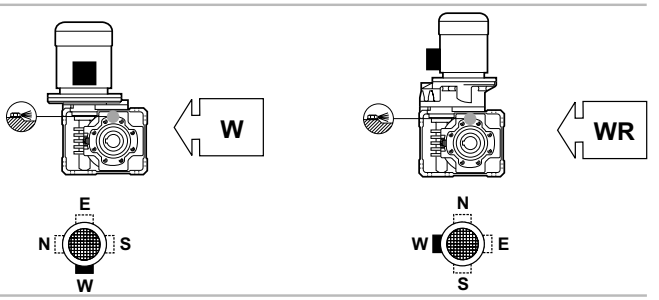


				Öl, Oil, Huile, Aceite, Itali, Óleo [l]						
				B3	B6	B7	B8	V5	V6	R
W 63	i = 7, 10, 12, 15			0.31			0.31	0.31	0.31	0.15
	i = 19, 24, 30, 38, 45, 64, 80, 100			0.38			0.38	0.38	0.38	
W 75	i = 7, 10, 15			0.48			0.48	0.48	0.48	0.25
	i = 30, 40			0.52			0.52	0.52	0.52	
	i = 20, 25, 50, 60, 80, 100			0.56			0.56	0.56	0.56	
W 86	i = 7, 10, 15			0.64			0.64	0.64	0.64	0.25
	i = 30			0.73			0.73	0.73	0.73	
	i = 20, 23, 40, 46, 56, 64, 80, 100			0.90			0.90	0.90	0.90	
				B3	B6	B7	B8	V5	V6	R
W 110	P80...P132	–	–	1.5			1.9	1.7	1.6	0.40
	–	M2 – M3	–	1.5			1.9	1.7	1.6	
	–	–	$7 \leqslant i \leqslant 15$	1.5			1.9	1.7	1.6	
			$20 \leqslant i \leqslant 100$	2.7			1.9	1.7	1.6	

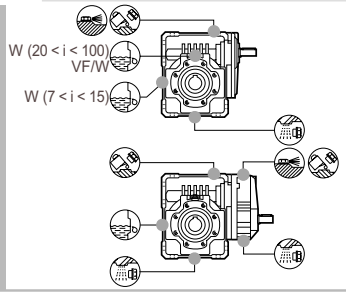
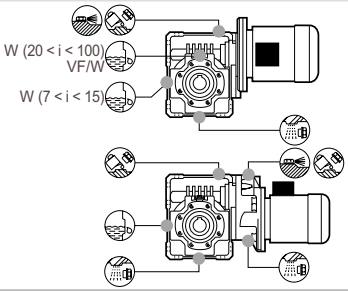
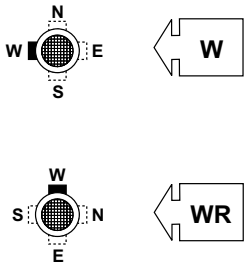
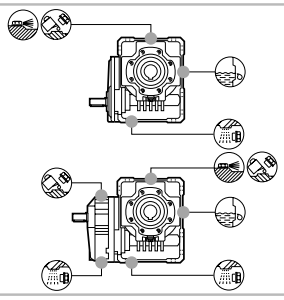
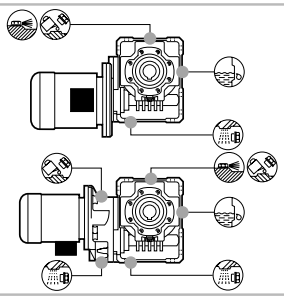
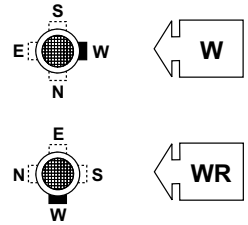
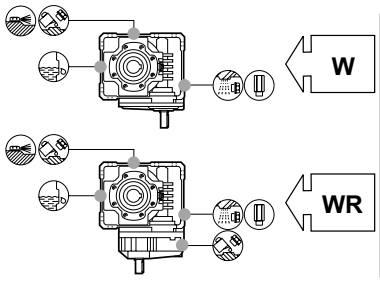
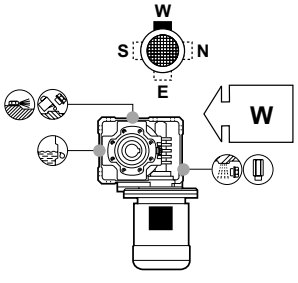
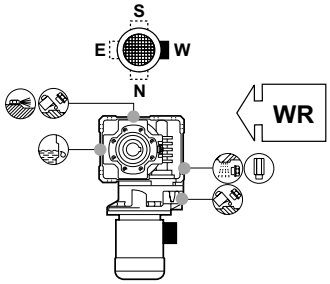
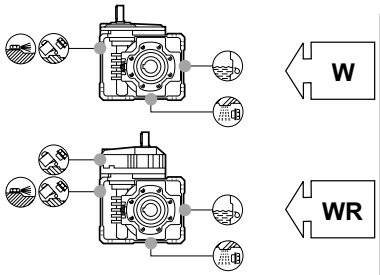
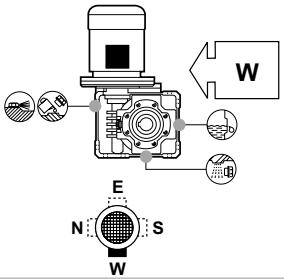
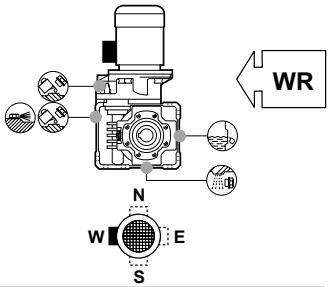
	Zeichenerklärung	Key	Légende	Clave	Significato dei simboli	Explicação dos símbolos
	Einfüll- / Lüfterschraube	Filling / breather plug	Bouchon de event / remplissage	Tornillos de llenado / respiradero	Vite di riempimento / di sfiato	Parafuso de enchimento / ventilação
	Ölstandsschraube	Level plug	Bouchon de niveau	Tornillo de nivel de aceite	Viti di livello dell'olio	Parafuso do nível do óleo
	Ablassschraube	Drain plug	Bouchon de vidange	Tornillo de drenaje	Vite di scarico	Parafuso de purga

Die angegebenen Ölfüllmengen sind Anhaltswerte! Je nach Einbaulage muss das Getriebe bis zur Mitte des Stopfens bzw., falls vorhanden, des Pegelstabes befüllt werden. Bitte beachten Sie, dass die tatsächlichen Füllmengen u.U. stark von den Tabellenwerten abweichen können.	Oil quantities are approximate only. For correct filling always refer to the centre of the sight glass or the dipstick, when this is supplied. In some cases, even substantial discrepancies may occur compared to the oil quantities listed in the chart.	Ces dernières sont indicatives, et pour un remplissage correct il faut faire référence au milieu du bouchon de niveau ou à la jauge à huile, si présents. Par rapport à cette condition la quantité de lubrifiant indiqué dans le tableau peut présenter des écarts, occasionnellement considérables.	Las cantidades de aceite indicadas son solo valores indicativos. Dependiendo de la posición de montaje el engranaje debe llenarse hasta la mitad del tapón o de la varilla de nivel de aceite, si tiene una disponible. Por favor, tenga en cuenta que las cantidades de llenado reales, en ciertas circunstancias pueden diverger mucho de los valores de las tablas.	Le quantità di olio indicate sono valori approssimativi. A seconda della posizione di montaggio, il riduttore deve essere riempito fino alla metà del tappo o, se presente, dell'asta di livello. La quantità di riempimento effettiva può variare fortemente dai valori riportati nella tabella.	As quantidades do óleo de enchimento são valores de orientação! Consoante a posição de montagem é necessário encher a engrenagem até ao centro do tampão, se existente, da vareta do óleo. Note que as quantidades de enchimento reais podem variar substancialmente dos valores indicados na tabela.

W 63U, 75U, 86U WR 63U, 75U, 86U

	HS	S - P (IEC)
B3		
B6	nicht verfügbar / not applicable / application exclus./ ES / non disponibile / Não disponível	
B7		
B8		
V5		
V6		

W 110U WR 110U

	HS	S - P (IEC)
B3		 
B6	nicht verfügbar / not applicable / application exclus./ ES / non disponibile / Não disponível	
B7		
B8		 
V5		 
V6		 

E.C. Declaration of Conformity

haacon hebetechnik GmbH
Josef-Haamann-Straße 6
D-97896 Freudenberg/Main

haacon

Name and address: haacon hebetechnik gmbh
Josef-Haamann-Straße 6
D-97896 Freudenberg / Main

Phone: +49 (0) 9375 / 84-0
Telefax: +49 (0) 9375 / 8466

We hereby declare that the product

Designation: Electric rope winch

Type: ESF, ESG

Capacities: 150 – 990 kg

as delivered corresponds to the following
relevant directives.

98/37/EC	EC-machinery directive
2006/95/EC	EC-Low-voltage directive
2004/108/EC	EC-Electromagnetic compatibility guideline

Harmonised standards:

DIN EN ISO 12100-1/-2	safety of machines
EN ISO 13850	Emergency stop
EN 60204-32	Electrical equipment of machines, Requirements for hoisting machines
EN 61000-6-2	Electromagnetic compatibility – Immunity for industrial environments
EN 61000-6-4	Electromagnetic compatibility – Emission standard for industrial environments
EN 14492-1	Power driven winches and hoists, Part 1: Power driven winches
EN 12385-1-4	Steel wire ropes - Safety

National standards and technical specifications:

9.GPSGV	Neunte Verordnung zum Gerätesicherheitsgesetz
BGV A1	Unfallverhütungsvorschriften (Grundsätze der Prävention)
BGV D8	Unfallverhütungsvorschriften (Winden, Hub-Zuggeräte)
BGR 500	Unfallverhütungsvorschriften (Lastaufnahmemittel)
FEM 9.511	Triebwerkeinstufung
DIN VDE 0100-610	Errichten von Niederspannungsanlagen Teil 6-61- Prüfungen
DIN 15020-2	Grundsätze für Seiltriebe – Überwachung im Gebrauch

Signed:

Freudenberg, 24.01.2008

Michael Grän i.V. Konrad Lazarus

gb issue 1; 01/08	090068 dated 24.01.2008

Formblatt-Nr. 100021

EG-Konformitätserklärung

haacon hebetechnik GmbH
Josef-Haamann-Straße 6
D-97896 Freudenberg/Main

haacon

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Josef-Haamann-Straße 6
D-97896 Freudenberg / Main

Telefon: +49 (0) 9375 / 84-0
Telefax: +49 (0) 9375 / 8466

Hiermit erklären wir, dass das Produkt

Benennung: Elektroseilwinde

Typ: ESF, ESG

Traglastbereich 150 – 990 kg

in der gelieferten Ausführung folgenden
einschlägigen Bestimmungen entspricht.

98/37/EG	EG-Maschinenrichtlinie
2006/95/EG	EG-Niederspannungsrichtlinien
2004/108/EG	EMV-Richtlinie Elektromagnetische Verträglichkeit

Angewendete harmonisierte Normen:

DIN EN ISO 12100-1/-2	Sicherheit von Maschinen
EN ISO 13850	NOT-HALT
EN 60204-32	Elektrische Ausrüstung von Maschinen, Anforderungen an Hebezeuge
EN 61000-6-2	Elektromagnetische Verträglichkeit – Störfestigkeit für Industriebereiche
EN 61000-6-4	Elektromagnetische Verträglichkeit – Störaussendung für Industriebereiche
EN 14492-1	Kraftgetriebene Winden und Hubwerke, Teil 1 : Kraftgetriebene Winden
EN 12385-1-4	Drahtseile aus Stahldraht - Sicherheit

Angewendete nationale Normen und Spezifikationen:

9.GPSGV	Neunte Verordnung zum Gerätesicherheitsgesetz
BGV A1	Unfallverhütungsvorschriften (Grundsätze der Prävention)
BGV D8	Unfallverhütungsvorschriften (Winden, Hub-Zuggeräte)
BGR 500	Unfallverhütungsvorschriften (Lastaufnahmemittel)
FEM 9.511	Triebwerkeinstufung
DIN VDE 0100-610	Errichten von Niederspannungsanlagen Teil 6-61- Prüfungen
DIN 15020-2	Grundsätze für Seiltriebe – Überwachung im Gebrauch

Unterzeichner:

Freudenberg, 24.01.2008

Michael Grän i.V. Konrad Lazarus

de Ausgabe 1; 01/08	090068 vom 24.01.2008

Formblatt-Nr. 100021